

WHAT IS CLAIMED IS:

- 1 1. A chimeric molecule comprising an angiogenic factor linked to a
2 targeting molecule that specifically binds to a vascular endothelium.
- 1 2. The chimeric molecule of claim 1, wherein the angiogenic factor
2 specifically binds to at least one of VEGF-R1, VEGF-R2, or VEGF-R3.
- 1 3. The chimeric molecule of claim 1, wherein the targeting molecule
2 is a peptide.
- 1 4. The chimeric molecule of claim 1, wherein the angiogenic factor is
2 vascular endothelial growth factor A (VEGF-A), vascular endothelial growth factor A₁₂₁
3 (VEGF- A₁₂₁), vascular endothelial growth factor A₁₄₅ (VEGF-A₁₄₅), vascular endothelial
4 growth factor A₁₆₅ (VEGF- A₁₆₅), vascular endothelial growth factor A₁₈₉ (VEGF- A₁₈₉),
5 vascular endothelial growth factor A₂₀₆ (VEGF- A₂₀₆), vascular endothelial growth factor
6 B (VEGF-B), vascular endothelial growth factor B₁₆₇ (VEGF- B₁₆₇), vascular endothelial
7 growth factor B₁₈₆ (VEGF-B₁₈₆), vascular endothelial growth factor C (VEGF-C),
8 vascular endothelial growth factor D (VEGF-D), vascular endothelial growth factor E
9 (VEGF-E), placental growth factor (PIGF), acidic fibroblast growth factor (aFGF), basic
10 fibroblast growth factor (bFGF), or angiopoietin-1 (Ang1).
- 1 5. The chimeric molecule of claim 1, wherein the angiogenic factor is
2 Ang2, endostatin or angiostatin.
- 1 6. The chimeric molecule of claim 1 that is a fusion protein, wherein
2 the fusion protein comprises an angiogenic factor linked to a targeting molecule that
3 specifically binds to a vascular endothelium.
- 1 7. The fusion protein of claim 6, wherein the angiogenic factor is
2 VEGF-B, vascular endothelial growth factor B₁₆₇ (VEGF- B₁₆₇), vascular endothelial
3 growth factor B₁₈₆ (VEGF-B₁₈₆), or vascular endothelial growth factor C (VEGF-C).
- 1 15. A method of increasing cardiac neovascularization comprising
2 contacting endothelial cells of the cardiac vasculature with a chimeric molecule wherein
3 the chimeric molecule comprises an angiogenic factor linked to a targeting molecule that
4 specifically binds to a vascular endothelium.

1 16. The method of claim 15, wherein the angiogenic factor specifically
2 binds to at least one of VEGF-R1, VEGF-R2, or VEGF-R3.

1 17. The chimeric molecule of claim 15, wherein the targeting molecule
2 is a peptide.

1 18. The method of claim 15, wherein the angiogenic is vascular growth
2 factor A (VEGF-A), vascular endothelial growth factor A₁₂₁ (VEGF- A₁₂₁), vascular
3 endothelial growth factor A₁₄₅ (VEGF-A₁₄₅), vascular endothelial growth factor A₁₆₅
4 (VEGF- A₁₆₅), vascular endothelial growth factor A₁₈₉ (VEGF- A₁₈₉), vascular endothelial
5 growth factor A₂₀₆ (VEGF- A₂₀₆), vascular endothelial growth factor B (VEGF-B),
6 vascular endothelial growth factor B₁₆₇ (VEGF- B₁₆₇), vascular endothelial growth factor
7 B₁₆₇ (VEGF-B₁₆₇), vascular endothelial growth factor C (VEGF-C), vascular endothelial
8 growth factor D (VEGF-D), vascular endothelial growth factor E (VEGF-E), placental
9 growth factor (PIGF), acidic fibroblast growth factor (aFGF), basic fibroblast growth
10 factor (bFGF), or angiopoietin-1 (Ang1).

1 19. The method of claim 15, wherein the chimeric molecule is a fusion
2 protein wherein the fusion protein comprises an angiogenic factor linked to a targeting
3 molecule that specifically binds to a vascular endothelium.

1 20. The method of claim 19, wherein the angiogenic factor is vascular
2 endothelial growth factor B, vascular endothelial growth factor B₁₆₇ (VEGF- B₁₆₇),
3 vascular endothelial growth factor B₁₈₆ (VEGF-B₁₈₆), or vascular endothelial growth
4 factor C (VEGF-C).

1 21. The method of claim 15, wherein the chimeric molecule is
2 suspended or dissolved in a pharmaceutically acceptable carrier.

1 22. The method of claim 15, wherein the chimeric molecule is
2 suspended or dissolved in a cell culture medium.

1 23. The method of claim 15, wherein the pharmaceutical composition
2 is in the form of an injectable solution.

1 24. A polynucleotide comprising a nucleic acid sequence encoding a
2 fusion protein comprising an angiogenic factor and a targeting molecule, wherein the
3 targeting molecule specifically binds to a vascular endothelium.

1 25. The polynucleotide of claim 24, wherein the nucleic acid sequence
2 is in an expression cassette.

1 26. The polynucleotide of claim 25, wherein the expression cassette is
2 in a retroviral vector or an adenovirus-associated vector.

1 27. A method of inducing angiogenesis in a tissue comprising
2 transfecting an endothelial cell with the nucleic acid of claim 24, whereby the cell
3 expresses a fusion protein encoded by the nucleic acid.

1 28. A pharmaceutical composition comprising the chimeric molecule
2 of claim 1 and a pharmaceutically acceptable carrier.

1 29. A pharmaceutical composition comprising the fusion protein of
2 claim 6.